

real growth in aircraft procurement would have to average 13 percent a year if a shortfall of 592 aircraft were to be made up in five years.^{8/}

These added costs of shortfalls are intended as rough approximations, not as alternative budgets. The costs generally assume that planes are bought at the same unit price that the Navy expects to pay for them in 1992, deflated to 1988 dollars. This unit price implies that shortfalls are met by extending procurement at currently planned rates; costs would be lower if shortfalls were met by increasing production rates. These estimates are not based on year-by-year costs, which would take into consideration other factors such as learning-curve effects.

8. This percentage assumes that planes could be added evenly in every year. Since some of the shortfall includes planes no longer in production, lines would have to be started and real growth in costs toward the end of the planning period would be higher.

CHAPTER IV

ALTERNATIVES TO THE ADMINISTRATION'S PLANS

The preceding chapter suggested that, even under the Administration's plans, the Navy faces some difficult choices regarding naval aircraft. It could face shortfalls of aircraft, perhaps substantial ones, in addition to the possible need to reallocate funds to pay for a plan that requires aircraft spending to average 7 percent annual real growth.

Those choices become much more difficult if one assumes that the Navy will receive substantially less funds than it plans for naval aircraft. Yet, with the latest Congressional budget resolution calling for real reductions in total DoD funds, that assumption is quite plausible.

This chapter addresses four alternatives to the Navy's aircraft plans. These alternatives were constructed to illustrate the possible consequences of limiting funding for naval aircraft procurement and are intended to reflect possible Congressional and Administration actions, not to cover the universe of available choices. Thus, all of them generate savings over a five-year period equal to the savings that would result from maintaining a level of zero real growth in aircraft procurement, compared with the growth planned by the Administration. Zero real growth was chosen solely to allow the study to illustrate specific options; the Congress may well choose a higher or lower figure.^{1/} The options include some cases in which growth is higher or lower than zero in some years, and in which savings appear in accounts other than aircraft procurement.

The Navy's aircraft procurement account--technically known as the Aircraft Procurement, Navy (APN) account--contains funds for

1. The Congressional Budget Office baseline for 1988 through 1992 assumes zero real growth in defense budget authority for each of the next five years. Similarly, within the baseline, zero real growth was assumed in the Navy's aircraft procurement account.

aircraft other than the combat aircraft dealt with in this study. Funding in other categories of the account (including those for trainer and transport aircraft and for spares and modifications of existing aircraft) is already projected in the Navy budget to receive less than the amount associated with zero real growth. Since it may be difficult to fund the modifications and spares needed within this diminished amount of funding, the analysis did not attempt to cut further this portion of the account.

The four options illustrate various combinations of the following basic choices facing the Navy:

- o How many deployable aircraft carriers to maintain;
- o Whether or not to reduce shortfalls of aircraft; and
- o Whether to reduce costs by cutting back on procurement of existing aircraft, or by delaying or canceling new programs.

Specifically, Options I and II maintain the Administration's plans for numbers of aircraft carriers and air wings (force structure). Option I finds the needed saving by reducing aircraft procurement evenly, while Option II defers the V-22 program for three years and cancels the A-6F modification program. Both of these options increase shortfalls. Options III and IV reduce force structure, which eliminates the underutilization suggested by shortfalls and produces operating savings. Option III saves the remaining funds by an across-the-board cut in the aircraft account, and Option IV delays the LRAACA program slightly and cancels the A-6F improvements.

OPTION I. MAINTAIN 15 CARRIERS BUT BUY FEWER AIRCRAFT AND DELAY RETIREMENTS

This alternative generally exemplifies recent actions taken by the Navy to cut costs. For example, last year the Navy reduced its planned 1988 aircraft funding to reflect new and lower planning targets. During that cutback, the Navy maintained its plan to have 15 deployable aircraft carriers--one of its highest priorities--and continued procurement of all types of aircraft rather than cancel any

systems. Planned quantities, however, were reduced in roughly half of the aircraft lines, while other lines continued at 1987 levels. This sort of cut has the appeal of spreading the pain evenly and may be more politically viable than plans to cancel systems. But as this alternative will show, it is also costly because aircraft bought in smaller quantities are more expensive.

Specifically, the alternative would cut proportionately from all aircraft lines the \$6.9 billion needed to attain zero real growth over the next five years. The Navy would buy 306 fewer planes than the Administration's program (see Table 8). In order to limit increases in the aircraft shortfall, the alternative would raise retirement ages--another apparent Navy strategy in the face of funding reductions.

By design, for this approach the savings of \$6.9 billion for the 1988-1992 period were taken from the aircraft procurement account (see Table 9). No savings were assumed for 1988 and 1989 because funding in these years is lower than in 1987 and because it seemed reasonable, for such a pro rata reduction, to delete the required savings from years that exceeded zero real growth.

This alternative has the advantage of maintaining the 15 deployable carriers and their accompanying 14 active air wings (a reserve air wing would be activated in wartime to accompany the fifteenth deployable carrier).^{2/} The Navy feels this is the minimum number needed for peacetime presence and to pursue such wartime strategies as the forward offensive strategy. The alternative would also continue improving the capabilities of the fleet by introducing new aircraft systems and modifications to older aircraft, including the A-6F upgrade. Introductions would be slowed modestly, however, because new aircraft would suffer the same pro rata reductions as other aircraft. Finally, all production lines would remain open, providing a larger production base in the event of war.

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2. A sixteenth carrier is expected to be undergoing a service life extension program (SLEP) for the foreseeable future. The second reserve air wing would eventually be attached to this carrier, though activating the carrier could take some time.

TABLE 8. COMPARISON OF THE ADMINISTRATION'S PLAN AND ALTERNATIVES

Plan/ Alternative	Number of Carriers	Net Aircraft Shortfall		Average Age of Naval Combat Aircraft in 1994 (In years)				Range of Increase in Unit Costs Above Those in Administra- tion's Plan, 1988-1992 (In percents)	Decrease in Number of Aircraft Bought 1988-1992 Relative to Administra- tion's Plan
		(Overage)		All Aircraft		Fighter/ Attack			
		1987	1994	1987	1994	1987	1994		
		1987	1994	1987	1994	1987	1994		
<hr/>									
Administration's Plan, 7 Percent Real Growth	15	111	176	12.2	12.9	10.6	10.3	n.a.	n.a.
Zero Real Growth Alternatives									
Option I: Reduce Procurement Evenly; Delay Retirements	15	111	361	12.2	14.2	10.6	11.4	7 to 82	306
Option II: Delay V-22 Three Years; Cancel A-6F Modifi- cation	15	111	216	12.2	13.6	10.6	10.6	n.a.	118
Option III: Reduce Force Structure; Reduce Procure- ment Evenly	13	(88)	(2)	12.2	13.4	10.6	10.6	2 to 12	81
Option IV: Reduce Force Structure; Cancel A-6F Modification; Delay LRAACA	13	(88)	(52)	12.2	13.3	10.6	10.4	n.a.	36

SOURCE: Congressional Budget Office using data from the Department of the Navy.

NOTE: n.a. = not applicable.

TABLE 9. DERIVATION OF SAVINGS UNDER ALTERNATIVE APPROACHES (In billions of dollars)

Option	1988	Five-Year Total	1988-1992	
			Aircraft Procurement	Operating and Support <u>a/</u>
I	0.0	6.9	6.9	0.0
II	0.2	6.9	6.9	0.0
III	0.6	6.9	1.8	5.1
IV	0.8	6.9	1.8	5.1

SOURCE: Congressional Budget Office (CBO) estimates from the President's budget for fiscal years 1988 and 1989, and Selected Acquisition Reports (various submissions). Operating and Support savings were derived using CBO's Defense Resources Model.

- a. Includes the accounts that fund military personnel and operation and maintenance, as well as small amounts in the procurement and development accounts that relate to the annual operating costs of the carriers and air wings.

By 1994, however, aircraft shortfalls under this option would be roughly double those under the Administration's plan--361 aircraft instead of 176. For some types of aircraft, even reducing retirements to zero would not be sufficient to compensate for procurement reductions under this option. Despite the larger shortfall, the Navy may still not be forced to deploy carriers with fewer aircraft in peacetime than their normal operating complements. The Navy may still be able to transfer or cross-deck enough aircraft from peacetime carriers just returning from deployment to avoid sailing short of planes.^{3/} Nonetheless, the increased shortfall suggests more underutilization of aircraft carriers, especially in wartime.

Delaying the retirement of planes drives up the average age of the fleet. By 1994, the average age of the Navy's combat fleet would be 14.2 years compared with 12.9 years under the Administration's

3. Alternatively, one could keep the shortfall close to the Administration's level, but then aircraft funding would grow by about 3 percent a year in real terms.

program. Thus, though the alternative would begin to enhance the capabilities of some portions of the fleet by introducing aircraft with new technology, the overall capabilities of the fleet could become more obsolete.

Finally, proportional cuts would result in less efficient procurement because the unit costs of planes bought at lower quantities would be higher--in some cases substantially higher. Based on CBO's analysis of budget data, unit cost increases for planes bought under this alternative would range from 7 percent (for the E-2C) to 82 percent (for the V-22 aircraft).^{4/}

OPTION II. MAINTAIN 15 CARRIERS BUT DELAY NEW PROGRAMS

If proportional cuts increase production inefficiencies and yield an older fleet, why not fund some programs more fully while delaying others? This general strategy--though not necessarily the specifics of this option--has been suggested by the Senate Committee on Armed Services as a way to improve efficiency in defense procurement.

As an example of such a strategy, this alternative would delay the start of V-22 aircraft procurement for three years; research funding would continue at planned levels to preserve the option of later procurement. As discussed in earlier chapters, the V-22 is a tilt-rotor aircraft that the Marine Corps plans to use to transport personnel and equipment from ship to shore. This option would also cancel the modification program planned for the A-6 aircraft. Instead of the new A-6F aircraft with improved radar, enhanced avionics, and a new engine, this option would continue procurement of the current A-6E at planned rates. The alternative would, however, maintain 15 deployable aircraft carriers and 14 air wings and so would meet Navy requirements.

4. The unit cost increase for the V-22 is high because the plane is in the early stages of production where small decreases in production yield large increases in costs and because the V-22's share of combat aircraft funding is large--an average of about 25 percent in the three-year period from 1990 through 1992. Hence, its pro rata share of the cut is also large.

Not buying V-22 and A-6F aircraft would save the requisite \$6.9 billion in procurement to attain zero real growth. Therefore, at approximately the same funding level, this alternative buys 188 more planes than Option I. As a result, by 1994 the shortfall of aircraft is much smaller (216 aircraft compared with 361) and the fleet is younger (averaging 13.6 years in 1994 compared with 14.2). Thus, the alternative achieves more and younger aircraft at the expense of delayed technological improvements caused by slowing production of the V-22 and canceling the A-6F modifications.

On the other hand, this alternative also retires some planes later than the Administration's program in order to limit increases in the shortfall (which still grows to 216 aircraft in 1994). Thus, the average age of the fleet under this option is 0.7 years higher than under the Administration's program. And, because delaying retirements is not sufficient to compensate for some shortfalls, the shortfall would be 40 planes higher than under the Administration's program.

Delaying the V-22: Pros and Cons

Delaying the V-22 aircraft may have some advantages. As discussed earlier, Members of the Congress and the Administration have criticized the program, expressing concerns about expense, complexity, and about how well V-22 capabilities mesh with those of other systems performing the amphibious assault mission. The Department of the Navy itself delayed procurement of the first planes from 1989 to 1990 in the President's budget submission for fiscal year 1988, although the Marine Corps argues that this delay was caused by cost negotiations with the contractor rather than development problems.^{5/} Nevertheless, a delay of this sort in other defense programs has frequently been an indication of development problems; if this is the case,

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5. Former Secretary of the Navy John Lehman wanted development funded under a firm fixed-price concept, with the developers being responsible for cost overruns. The Bell/Boeing team wanted a cost-plus-incentive contract, with the Navy absorbing much of the risk. Apparently the Navy eventually agreed to a fixed-price incentive contract under which risk of cost increases is shared. The Marine Corps also argues that this delay will not in turn delay the fielding of the V-22, though fewer V-22s will be in the fleet in the near term under the delayed program.

delaying the V-22 program for another three years should provide ample time for it to reach maturity before entering production.

On the other hand, the Marine Corps has argued that the number of CH-46s will be lower than service requirements if the V-22 program is delayed. Indeed, this alternative would yield a shortfall of 111 planes in 1994 for the Marine Corps' medium-assault mission. In contrast, the Administration's program would yield a slight overage of four planes. Growth in the shortfall stems in part from expected losses of CH-46 helicopters during peacetime training accidents but more from the increases in the number of aircraft required in the Marine Corps' medium-lift squadrons so they can respond to the Corps' greater need to transport troops and equipment. Under the Administration's plan, the Marine Corps would begin meeting its increased requirements in the early 1990s; under this option, it would not begin meeting them until the mid-1990s, and hence the Corps would have less airlift capability for its amphibious forces for a few years. The Corps has expressed particular concern about whether it will have the lift to transport the High Mobility Multi-Wheeled Vehicle (HMMV) that has been bought in quantity as a replacement for the jeep. The CH-46s cannot carry HMMVs but CH-53s and V-22s can, and the Marine Corps argues that CH-53E inventories are already insufficient and will become more so during this time period.

Canceling A-6F Modification: Pros and Cons

Canceling the A-6F program and continuing A-6E production is consistent with the argument that the A-6F will not solve the key problem with the A-6E and will be rendered obsolete by the Advanced Tactical Aircraft (ATA). The A-6E is a large aircraft that is easily detected by enemy radar and so does not have a high probability of survival against a capable enemy. Although the A-6F would have improved avionics that would increase its survivability, that survivability would probably not be fully enhanced without a new airframe that incorporates radar-evading or stealth characteristics, such as those planned for the ATA. Thus, this approach avoids the added cost of the A-6F, which may add little to capability. This option is a conservative version of the one proposed earlier this year by the Senate Committee on Armed Services; the committee terminated all

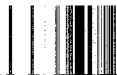
A-6 procurement in light of planned procurement of the Advanced Tactical Aircraft. The House continued the A-6F program.

On the other hand, unless the ATA experiences much higher procurement than is typical for Navy aircraft programs, the Navy will depend on the A-6 for many years. The A-6F would provide some improvement in capability until a large number of the Advanced Tactical Aircraft was available.

OPTION III. ACCEPT 13 DEPLOYABLE CARRIERS, REDUCE AIRCRAFT PROCUREMENT EVENLY

Given the magnitude of the aircraft shortfalls under the two previous options, the Navy's plan to deploy 15 aircraft carriers and 14 air wings may not be feasible. This is especially true if the Navy's plans for increasing retirement ages, and the even greater increases associated with the alternatives, prove optimistic (see Chapter III). If the Navy's estimated service lives--discussed in that chapter--were used, aircraft shortfalls under the previous options would be about 707 to 877 aircraft. Thus, this alternative evaluates retiring the two smallest carriers--the Midway and Coral Sea--in 1988 and at the same time reducing the number of air wings to 12, the force level of the early 1980s. When the Abraham Lincoln (CVN-72), which is now under construction, enters the fleet in 1990, the number of carriers would increase to 13 and would be held at that level. (To maintain that level, this alternative would also retire the Forrestal in 1992, when the George Washington (CVN-73), now under construction, enters the fleet.) Table 10 shows the numbers of carriers and air wings under the Administration's plans and Options III and IV.

This option is more consistent than the previous two with the suggestions of critics who doubt that the Navy would pursue the aggressive forward strategy in a major war against the Soviet Union. The risk of losing valuable carriers, or of provoking the Soviet leaders into a nuclear conflict, argue against such a strategy, as do concerns about the utility of the attack. Instead, critics see carriers playing a role on the periphery of a major war, which might be accomplished with 13 such ships.



Early retirement of carriers would achieve most of the savings necessary to reach zero real growth in the aircraft procurement account. The early retirements would save a total of \$5.1 billion over the next five years (including \$0.6 billion in 1988) in the operating and support accounts. If this amount was applied to offset increases in aircraft procurement costs, only another \$1.8 billion in savings over five years would be needed to achieve zero growth. Under this option, those savings would be achieved by pro rata reductions of buys of all aircraft, resulting in 81 fewer aircraft being bought than under the Administration's plan.

Nevertheless, purchases of aircraft would be sufficient to meet the reduced requirements associated with 13 aircraft carriers and 12 air wings. In fact, by 1994, there would be a slight overage of aircraft (about 2 planes), though there would be shortfalls of some types of aircraft offset by excesses of others. Thus, this alternative would provide full aircraft capability to a smaller carrier force.

TABLE 10. FORCE STRUCTURE UNDER THE ADMINISTRATION'S PLAN AND OPTIONS III AND IV

	1988	1989	1990	1991	1992 <u>a/</u>
Deployable Aircraft Carriers					
Administration	14	14	15	15	15
Options III, IV	12	12	13	13	13
Difference	-2	-2	-2	-2	-2
Active Carrier Air Wings					
Administration	14	14	14	14	14
Options III, IV	12	12	12	12	12
Difference	-2	-2	-2	-2	-2

SOURCE: Congressional Budget Office.

- a. The Administration plans to retire the Coral Sea late in 1992 when CVN-73 is fielded; Options III and IV, which retire the Coral Sea in 1988, would retire the Forrestal in 1992.

Procurement under this option also would enable the Navy to retire some of its planes earlier than under the other options. The average age of all naval combat aircraft (13.4 years in 1994) would be lower than under the previous two alternatives (13.6 years and 14.2 years), though slightly higher than the Administration's plan (12.9 years). The alternative would also continue to buy the new technology systems and to make the modifications the Navy envisions for its aircraft, though at slightly reduced rates. Hence, the alternative produces a smaller but more capable fleet.

Despite these advantages, this option does not produce the numbers of carriers and aircraft that the Navy believes are the minimum acceptable. Thus, in a major war the Navy would probably not have the forces to pursue the forward offensive strategy without great risk, since critics of the strategy question whether even 15 carriers would be sufficient. To the extent that the Navy is correct in assuming that the forward strategy would force the Soviet Union to withhold forces that might be used to attack other U.S. forces--especially convoys--this alternative might endanger the resupply of Europe. Or, if the Navy chose to pursue a forward strategy even with fewer carriers, it might have to decide between theaters, reducing strategic flexibility.

In peacetime, having fewer carriers could also mean that fewer were deployed overseas; 13 carriers might be able to support only about four deployed carriers instead of the five now planned. Naval forces with fewer carriers might be less able to respond in a crisis, if carriers based in the continental United States have to steam to trouble spots. Furthermore, if five carrier battle groups on average are kept at sea, the greater time at sea required of Navy personnel might cause retention rates to drop. Having to spend more time at sea may have contributed to the Navy's retention problems in the late 1970s and in 1980.

Finally, this alternative would cut procurement across the board, rather than select a few programs to defer or cancel, while keeping others at high production rates.^{6/} Thus, the option can be criticized for the same inefficiencies discussed in Option I, though to a lesser

6. In general, cuts were apportioned to programs based on their share of the aircraft procurement account. For a small percentage of the savings, cuts were taken against the four aircraft lines that had the largest share--totaling about 70 percent--of funding.

degree. CBO estimates from budget data suggest that unit costs of aircraft would increase under this option by between 2 percent and 12 percent.

OPTION IV. ACCEPT 13 DEPLOYABLE CARRIERS, CANCEL NEW PROGRAMS

This option would attempt to respond to the inefficiency of higher unit costs by limiting the number of programs affected by the cuts. As in the previous option, carriers would be retired early. Because of the large operating savings afforded by early retirement of carriers, smaller cuts could be made in other programs while still achieving zero real growth. Specifically, the A-6F program would be canceled, though A-6E procurement would continue at the Administration's planned levels. The LRAACA program would be delayed by one year, and procurement in the second year of the program would be reduced from 25 to 14. As with previous options, the alternative would delay some retirements slightly to minimize shortfalls.

Because force requirements are reduced, this option eliminates the aircraft shortfall and even produces an overage of about 52 planes by 1994 (see Table 8). (The overage could be avoided only by assuming retirements for the F/A-18 at ages earlier than those under the Administration's plan. As the Administration already assumes lower retirement ages for the F/A-18 than for other fighters, this assumption did not seem reasonable.) Thus, the alternative completely supports the smaller force structure.

The alternative would also produce the youngest force of any of the four options. In 1994, the average age of naval combat aircraft would be 13.3 years, close to the Administration's average age of 12.9 years. Moreover, this option would continue the V-22 aircraft program on its current development schedule, thus providing the Marine Corps with the improvements in technology it feels it needs. Finally, Option IV would buy most aircraft at the rates planned in the Administration's budget, and hence would not increase their unit costs.

A delay of the LRAACA program may prove necessary. Some analysts have argued that the three-year development program is too short and that the Navy has not developed a clear plan for its long-

range ASW aircraft needs. In particular, both House and Senate Armed Services Committees called for the Navy to submit plans for the ASW requirements (though both committees provided funding for a long-range aircraft). The one-year delay envisioned here would give the Navy more time to develop the systems that are integral to the program and to consider various alternatives in more detail.

On the other hand, the alternative can be criticized for not meeting the Navy's stated requirements for aircraft carriers. Nor does it provide improvements in the A-6 aircraft as a hedge against delays in the Advanced Tactical Aircraft that will eventually replace the A-6. And even this slight delay in the LRAACA program may cause concern in the Navy. The service has argued that ASW improvements are currently a very high priority because of the quieting of Soviet submarines.

CONGRESSIONAL ACTION TO DATE

As this study goes to press, Congressional action is proceeding on the President's budget for fiscal years 1988 and 1989. A conference committee of the House and Senate has completed action on a bill authorizing defense appropriations for 1988 and for some programs in 1989, while the House Committee on Appropriations has issued a proposed bill appropriating funds for 1988. Because actions are not completed, they are not reflected in the details of this study; Administration plans in this study are consistent with the President's budget proposals found in the submission for 1988 and 1989.

Some actions being considered by the Congress could affect the relevance of the options in this study. For example, the conference agreement on the defense authorization bill would, under its so-called "low tier," terminate funding for the A-6 aircraft (both existing A-6E aircraft and the program to develop the A-6F) and the AV-8B aircraft. Together those actions would achieve savings (\$7.3 billion in the years 1988 to 1992) sufficient to keep growth in the Navy's aircraft procurement account slightly below zero in real terms. Thus, the Congress would not need to take any of the other steps to achieve zero real growth discussed earlier in this chapter.

On the other hand, the actions contemplated in this low tier would exacerbate aircraft shortfalls in ways that could lead to further debate about funding of naval aircraft. There would be fewer A-6 and AV-8B aircraft under the low tier but no large additions to other types of aircraft. If there are no changes in requirements, shortfalls by 1994 would rise from 176 aircraft under the Administration's plan to about 380 aircraft under this low tier. Coupled with strong service support for programs such as the AV-8B, this shift may well prompt continued debate.

Moreover, final Congressional action may not include far-reaching steps such as termination of aircraft programs. The termination of the A-6 and AV-8B programs occurs only under the low tier of the authorization bill. That low tier applies if total appropriations for the national defense function (function 050) equal \$289 billion of budget authority or less. If the final appropriation is higher, a high-tier authorization applies that does provide funding for an A-6 program and AV-8B aircraft. Moreover, the appropriation bill proposed by the House Committee on Appropriations provides funding for both these aircraft.

It is virtually certain that the Congress will make changes in the 1988 budget that will affect detailed costs of options in this study. It seems much less likely that Congressional action will resolve naval aircraft issues. If the debate over affordable ways to meet needs for naval aircraft continues, it is likely to reflect generic options of the sort discussed in this study.

CHAPTER V

LONG-TERM BUDGET PRESSURES

Pressures on the Navy's budget may last well beyond the five-year period discussed in the preceding chapters. Two new planes to replace the A-6 and the F-14 are already being developed. Funding their procurement could prove to be expensive under all but the more optimistic assumptions. Nor does it seem likely that the shipbuilding account, the other major procurement account in the Navy's budget, will be able to finance higher aircraft costs, because a large block of carriers reaches retirement age early in the next century. This chapter discusses potential budget pressures associated with the Navy's long-term plans for aircraft.

These long-term pressures are of more than academic interest. Completing all the steps involved in the design of a state-of-the-art military aircraft can take a decade or more. Yet many of the decisions that influence costs are made relatively early in that process. Thus, if the Congress waits until it faces procurement decisions regarding these two new Navy aircraft, its only realistic choices will be when to begin procurement and how quickly to buy the planes. On the other hand, at this early stage in the process, the Congress could apply pressure to hold down costs, though classification levels for one of the programs may make monitoring its costs difficult.

THE NEW AIRCRAFT

The Navy is currently developing two new aircraft to replace the A-6 and the F-14--the Advanced Tactical Aircraft (ATA) and a version of the Air Force's Advanced Tactical Fighter (ATF).^{1/}

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1. For additional information on the ATA and ATF, see Bert H. Cooper, Jr., *Advanced Tactical Aircraft (ATA) Program* (Weapons Facts), and *Advanced Tactical Fighter (ATF) Aircraft* (Weapons Facts), Congressional Research Service, October 15, 1987.



The Advanced Tactical Aircraft

The ATA, originally intended to replace both the A-6 attack aircraft and the F-14 fighter/interceptor aircraft, is now apparently being developed with only an attack mission in mind. Though official details about the ATA--including costs, procurement schedules, and capabilities--are not publicly available, the Navy has provided some general information. The Navy plans for the ATA to have the long range and large payload needed for attack aircraft. In addition, since the A-6 has been criticized for not being sufficiently survivable in an increasingly hostile combat environment, the ATA will emphasize "stealth" technology. A stealthy plane employs a variety of techniques to decrease its visibility to enemy sensors. The Navy has also said that it would like the ATA to be more maneuverable than the A-6 to enhance its ability to avoid enemy fighters and missiles. Timing of the deployment of the ATA program is closely held, but former Secretary of the Navy John Lehman has indicated that it is similar to that of the Air Force's ATF, which will be fielded in the mid-1990s.

Navy estimates of ATA costs, which are very tentative, vary from about the same as those of the A-6E, according to testimony by a former Deputy Chief of Naval Operations, to about 60 percent higher based on a press release by former Secretary Lehman.^{2/} Program quantities, about 450 according to the Secretary, would seem to indicate a one-for-one replacement of the A-6.

The Navy Variant of the Advanced Tactical Fighter

Concerns about affordability, and perhaps a desire to respond to Congressional pressure for more joint development, led the Navy and Air Force to announce that they plan to buy variants of each other's

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2. Testimony by Vice Admiral Edwin H. Martin, Deputy Chief of Naval Operations for Air Warfare, before the Tactical Warfare Subcommittee of the Senate Committee on Armed Services, on the fiscal year 1986 budget, and a DoD news briefing by Undersecretary of Defense for Research and Engineering Donald Hicks, Secretary of the Navy John Lehman, and Secretary of the Air Force Russell Rourke, Thursday, March 13, 1986. Neither of these sources is very specific. In particular, the admiral stated that he expected the ATA to "be in the same ball park as the F/A-18 and A-6." Secretary Lehman said that, while the Navy was not declassifying costs for the ATA, he did not expect its costs to exceed those of the ATF.

planes. The Navy now plans to buy some version of the Air Force's Advanced Tactical Fighter as a replacement for the F-14, while the Air Force will use a variant of the ATA to replace its medium-attack aircraft, the F-111.

An earlier Congressional Budget Office study detailed the many improvements that the Air Force would like in its ATF.^{3/} Presumably they would also be present in a Navy version. The improvements include:

- o Enhanced avionics to assist the pilot in locating and attacking targets;
- o Stealth technology to make the aircraft less visible to radars and infrared detectors;
- o Ability to maintain supersonic speed over long ranges;
- o Long ranges to allow the aircraft to be based far away from enemy attackers;
- o Ability to take off and land on short runways;
- o Easy maintainability and higher reliability than current aircraft; and
- o Higher chance of the crew surviving in areas contaminated by chemical or biological agents.

The Navy has said that it plans to buy a combined total of about 1,000 of the ATA and Navy ATF. Assuming that the Navy buys 450 ATAs, as suggested above, procurement of the Navy ATF would total about 550--about 100 planes more than its F-14 inventory. Former Secretary Lehman, however, called for procurement of only enough Navy ATFs to replace F-14s on a one-for-one basis. Thus, the exact size of the buy either is not publicly available or has not yet been determined.

3. Congressional Budget Office, *Tactical Combat Forces of the United States Air Force: Issues and Alternatives* (April 1985).



The timing of the Navy's ATF program is even less clear than that of the ATA, though the Navy has indicated that it might begin in the late 1990s.^{4/} A schedule that assumes that procurement of the Navy ATF begins around 1998 or 1999 would match the time when the F-14 would begin to retire in large quantities, based on current Navy estimates that the F-14 will have a service life of 27 years.

Costs of the Navy ATF are also highly uncertain, in part because of changes that may have to be made in a Navy version of that plane. A Navy ATF would have to be modified to be able to land and take off from a carrier. Depending on how closely the services coordinate their requirements during development, this modification could mean a major redesign effort, though the Navy is apparently hoping that the two planes will be about 90 percent common. Indeed, difficulties in achieving a common design have led to problems in past joint programs and could eventually lead the Navy to develop its own follow-on fighter, a move that might increase costs.^{5/}

Even if the Navy does buy a variant of the Air Force's ATF, the Navy fighter might be more expensive than the Air Force fighter. The new F-14D, for example, is projected to cost about twice as much as

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4. The procurement schedules for these two planes are good examples of the differences between Air Force and Navy classification policies. The Navy feels that its ATF schedule should be classified. And the entire Navy ATA program is a so-called "black program," which means among other things that its budget is accessible to only a very few people. The Air Force, on the other hand, has chosen to keep technical aspects of the ATF program--arguably the information of most use to the Soviet Union and for which the Congress has the least need--tightly held while providing the Congress with cost and scheduling information. These approaches appear to reflect Air Force and Navy policies rather than program sensitivity, since there appears to be no reason why cost and scheduling information should be more sensitive for either the Navy ATF or the ATA program than for Air Force variants.
 5. The two services' requirements appear to be in direct conflict about whether the plane has a central load-carrying I-beam that would strengthen the plane's structure in the area where catapult takeoffs and arrested landings create the most stress. The Navy has indicated that it would prefer that the Air Force develop a plane with this beam down the center of the aircraft to facilitate conversion of the plane for carrier use. The Air Force may resist such a structural requirement, however, since it makes the plane heavier. Air Force and contractor sources have argued informally that a redesign incorporating the I-beam may not be too difficult. But such a modification of the weight-carrying structure of the aircraft might be viewed by some observers as being on the level of difficulty associated with adding a basement after a house is completed.